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ABSTRACT

ASSESSMENT OF THE NEED FOR A
COLLEGE OF VETERINARY MEDICINE IN
THE OLD WEST REGION

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A B S T R A C T

ASSESSMENT OF THE NEED FOR A
COLLEGE OF VETERINARY MEDICINE IN
THE OLD WEST REGION

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STATEMENT OF THE PROBLEM AND OBJECTIVES OF THE STUDY

Animal agriculture -- beef cattle, sheep, horses, hogs, dairy cattle, and poultry -- is the largest single source of farm and ranch income in the Old West Region. People in the animal industry consider animal diseases a major deterrent to profitable development of animal agriculture and have repeatedly urged that a college of veterinary medicine be established. Parents have also pressured state officials for a veterinary college because their sons and daughters are being denied an educational opportunity in veterinary medicine.

States seek a college of veterinary medicine to fulfill the following: a) the regional and nationwide demand for veterinarians; b) the student demand for veterinary medicine; c) the demand for a sophisticated veterinary teaching hospital to provide referral and diagnostic services and to elevate the quality of professional services in the area; d) demand for veterinary medical extension and continuing education; e) demand for research to solve problems in the animal and related human health fields; f) demand for new industries which develop from biomedical and environmental research; and g) demand for residency, intern, and other graduate education.

The Northern Plains states of Montana, Nebraska, North Dakota, South Dakota, and Wyoming are, through the Old West Commission, pursuing a new approach to economic development. Among its goals,



the Commission agreed to pursue programs for the Old West Region (OWR) which will:

- a) Develop natural and human resources and increase skills as part of an effort to expand industrial and business opportunities;
- b) Strengthen and expand the economic base through programs directed at halting out-migration, raising median family income, and providing additional job opportunities; and
- c) Enhance the quality of life through improved educational opportunities.

If a college of veterinary medicine is needed, development of such a college in the Old West Region would contribute toward the achievement of each of the above goals.

Statement of the Problem

1. The economic development of the livestock industry and animal agribusiness in the Old West Region is impeded by losses attributed to animal diseases.
2. The migration of highly qualified young people to states outside of the Region that have veterinary colleges is a growing problem.
3. Future veterinary medical manpower requirements for the Region are not known.
4. The adequacy of the present and future supply of veterinarians is not known.
5. The extent of opportunities for students in the Region to obtain an education in veterinary medicine is not known.



6. It is not known if the Region has adequate access to referral services, diagnostic services, and relevant programs of continuing education of high quality.

Objectives of the Study

This research was designed to achieve the following specific objectives:

1. Identify factors related to the demand for veterinary medical services;
2. Develop a model for projecting the demand for veterinary medical manpower;
3. Determine the student demand for veterinary medical education and the available opportunities for veterinary education;
4. Determine the demand for services of a college of veterinary medicine (continuing education, postdoctoral education, research, and referral services) other than DVM education;
5. Assess the demand for and supply of animal technicians;
6. Determine the profile of current veterinary medical manpower;
7. Project the supply of veterinarians;
8. Evaluate alternate approaches to fulfilling the needs of the five-state Region; and
9. Formulate recommendations.

IDENTIFICATION OF FACTORS RELATED TO DEMAND
FOR VETERINARY MEDICAL SERVICE

Manpower studies in general suffer from a lack of definition of terms. Expressions such as "need" and "demand" for a professional are sometimes erroneously used as synonyms. "Need" has meaning only when a prior set of norms in a time sequence has been defined. In other



words, "need" for a professional (veterinarian) is derived from a set of assumptions or theories. "Demand" for a professional reflects the economic capacity as well as the preference of society to purchase his or her services. This investigation is designed to determine the demand for veterinarians in the Old West Region.

The Veterinary Medical Profession

Veterinary medicine is the health profession that applies the principles of the biomedical sciences to health of and disease in animals. It contributes to many areas of human need through research and, in its practice, has important direct and indirect bearing on human health. Veterinarians are essential to the following industries and public service programs:

1. Cattle, swine, sheep, horse, and poultry industries;
2. Protection of the nation's investment in wildlife and laboratory, zoo, companion, and recreational animals;
3. Consumer protection by assuring
 - a) wholesomeness and safety of foods of animal origin, and
 - b) the efficacy and safety of drugs, surgical materials, and vaccines;
4. Biomedical research conducted in government and universities;
5. The pharmaceutical and biological industries, which depend upon veterinary research for discovery of new drugs, surgical materials, and serums and vaccines for human and animal use; and
6. Public health agencies.

Economic Importance of Livestock

The Old West Region's farm cash receipts from livestock products totaled over \$5 billion in 1973. Indications are that the importance



of this segment of the economy will continue to grow rapidly. Growth is restrained, however, by animal diseases which cause death, interfere with feed utilization, reproduction, and growth of animals, and reduce the quality of meat, milk, eggs, wool, leather, etc. Losses in the Region attributable to animal diseases were estimated at over \$856 million in 1973.

The Old West has only 1.9 percent of the country's people; but it has 25.0 percent of the value of sheep, 17.0 percent of the value of cattle, 10.6 percent of the value of hogs, and 10.8 percent of the farm cash receipts from livestock products.. This information suggests the use of animal data as potential independent variables as predictors of the demand for veterinarians. In view of the economic importance of food animals to this area, it is not surprising that 76 percent of the veterinarians in the Old West Region are currently providing health services for livestock (large and mixed animal practice, 69 percent, plus regulatory, 7 percent).

Consumer Protection and Public Health

Through food inspection and regulation, veterinarians directly protect the consumer from infections and toxic substances derived from animals. In fiscal 1973, in 5,793 federally supervised plants alone, the guardians of public health condemned the following as unfit for human consumption:

- a) 444,029,000 pounds of poultry,
- b) 37,641,199 pounds of red meat and meat food products,
- c) 22,484,362 pounds of foreign meat and meat food products refused entry.



The close relationship between human and animal diseases is becoming well known by the general public. Under varying circumstances, some 175 animal diseases are known to be communicable to man. Veterinarians, whether in private or public practice, are engaged in public health programs to control and prevent such diseases as typhus, rabies, encephalitis, tuberculosis, psittacosis, brucellosis, and other such zoonoses (diseases transmissible from animals to man).

In summary, veterinarians provide specific benefits to human health in three major ways: a) removal of sources of exposure or infection to man, b) development of preventive or therapeutic drugs and biological products or treatments for animals that can be adapted for use in man, and c) food hygiene programs that protect the consumer against food-borne diseases.

List of Variables Associated with Demand

A broad spectrum of services benefiting man and animals is provided by the veterinary medical profession. Veterinarians serve public health and agriculture by: providing preventive animal health services essential for economical output of animal products; protecting the nation's livestock from diseases; and through research discovering measures for control or eradication of certain of the more devastating diseases contagious to man and animals. Future expected growth in both human and animal populations establishes an increased demand for veterinarians. Classification of animal and human populations identifies the following 25 factors related to the demand for veterinary medical services.



Farm and ranch cash receipts from livestock and livestock products	Number of dogs
Value of cattle and calves	Number of cats
Value of hogs and pigs	Per capita income
Value of sheep and lambs	Number of students admitted to veterinary colleges
Value of chickens	Human population
Value of turkeys	Liveweight of cattle and calves
Value of horses and mules	Liveweight of hogs
Number of cattle and calves	Liveweight of sheep
Number of hogs and pigs	Liveweight of chickens
Number of sheep and lambs	Liveweight of turkeys
Number of chickens	Pounds of milk and cream marketed
Number of turkeys	Total pounds of livestock and livestock products
Number of horses and mules	

DEVELOPMENT OF A MODEL FOR PREDICTING THE DEMAND FOR VETERINARIANS

The most reliable way to project demand is to identify the factors that underlie the basic demand for veterinarians, and then estimate the future demand on the basis of projections of these factors. The number of veterinarians is projected from 1973. Inherent in this analysis is the assumption that the number of veterinarians in 1973 adequately describes demand at that time.

The development of the model is based on data for all states in the U.S. The total number of veterinarians in each state is



interpreted as demand. Data for the number of veterinarians and the 25 factors identified above were collected for each state and analyzed for the years 1955, 1960, 1965, 1970, and 1973.

Multiple regression analysis was used in this study to predict the demand for veterinarians. Of the 25 variables under consideration, human population was the most important, and explained 84.3 percent of the variation in the number of veterinarians. Farm and ranch cash receipts from livestock and livestock products adds another 10.4 percent. These two factors together explain 94.7 percent of the changes in the number of veterinarians. Since the relationship between human population, cash receipts, and number of veterinarians is very high through five time periods from 1955 through 1973, the variables of population and cash receipts are used in projecting the demand for veterinarians in 1980, 1985, and 1990.

A factor to adjust the equation to the specific Old West states is applied to the prediction model developed for all states in the U. S. This adjustment depends on the assumption that the actual demand for veterinarians in the Old West relative to that predicted by the regression model will remain at the same ratio as in 1973.



The projections for human population and cash receipts and adjustments for the five Old West states are substituted in the regression equation to obtain the demand for veterinarians in the Old West as follows:

<u>Year</u>	<u>No. of Veterinarians</u>
1980	1,409
1985	1,810
1990	2,339

Alternative models which were constructed include a) human population alone as a predictor variable, b) human population and total production (by weight), and c) population and per capita income. All of these alternative models proved to be substantially less effective in predicting demand than the model using population and cash receipts.

STUDENT DEMAND VERSUS OPPORTUNITIES FOR DVM EDUCATION

In addition to the demand for veterinarians, one measure of the need for a veterinary college is the number of students in the Region who want to enroll.

In the U.S. there are 18 fully operational colleges of veterinary medicine (CVM) located in 17 states (Figure 1). Washington State University is sharing its veterinary medical curriculum with Idaho and Oregon. Louisiana and Florida are building colleges; Louisiana State University's CVM accepted its first class in 1974. Mississippi, Tennessee, and Virginia are each



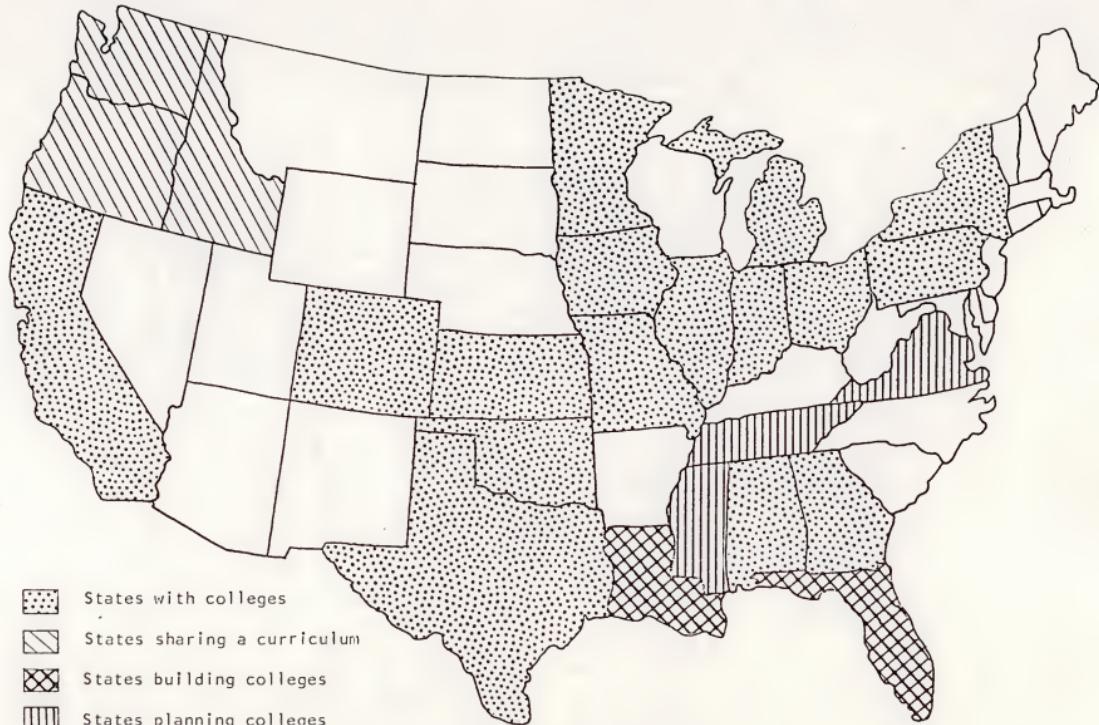


FIGURE 1. COLLEGES OF VETERINARY MEDICINE



planning veterinary colleges. The five Old West states of Montana, Nebraska, North Dakota, South Dakota, and Wyoming represent a vast geographic area which has no CVM.

The demand for education leading to the DVM degree can be expressed in terms of the number of preveterinary students and the number of applications for admission to colleges of veterinary medicine. In 1974 there were 12,003 applications for admission to the nation's 19 veterinary colleges; 86.0 percent were declined.

Distribution of entering students is uneven because preference is given to resident applications. Between 1970 and 1974 the nation's colleges increased resident enrollment 23.9 percent; in the same time period nonresident enrollment advanced only 2.7 percent.

The number of preveterinary students enrolled in the five-state Region was 434 in 1970, 611 in 1973, and 646 in 1974. Veterinary science departments in the Old West states estimated that enrollment will reach 695 in 1975, 869 in 1980, and nearly 1,000 in 1985. Few will achieve their goal to become veterinarians because the rejection rate for applications from the Region was 88.7 percent in 1973, 88.5 percent in 1974, and is projected at about 94.8 percent in 1975.

During the next 15 years, the Old West Region will experience increasing demand for veterinarians, a very large increase



in the number of highly qualified preveterinary students, and a decline in the number of students who will be admitted to a college of veterinary medicine. Few residents will achieve the goal of becoming a veterinarian because a) none of the five states has a college of veterinary medicine, b) veterinary colleges outside of the Region are operating at full or excessive capacity, and c) states which have colleges are reserving all or a larger portion of student spaces for their residents.

DEMAND FOR SERVICES PROVIDED BY A COLLEGE OF VETERINARY MEDICINE OTHER THAN DVM EDUCATION

The nation's veterinary colleges serve their respective states by providing several vital services in addition to DVM education. Veterinarians can serve their communities best if their state has a CVM to provide research, referral services, and continuing education. The geographic distribution of veterinarians show concentration in states which have veterinary colleges and sparsity in states without colleges. Although the opportunity to obtain a veterinary education is an important factor in geographic distribution, it is also generally accepted that graduates prefer to practice in states that have a CVM. It is, therefore, understandable why recent data show that 60 percent of the residents of the Old West Region do not return to their native states after leaving to become Doctors of Veterinary Medicine. It is pertinent to note here that the percent of the nation's veterinarians residing in the Old West declined from 4.8 percent in 1955 to 3.9 percent



in 1973. Establishment of a CVM in the Region would profoundly reduce the out-migration of the Region's college-educated youth.

Evaluation of the Region's demands for services of a CVM, other than DVM education, leads to the following conclusion: The Region has large, unfulfilled demands for a college of veterinary medicine to provide a) continuing, intern, graduate, and residency education, b) research, and c) referral service. Veterinary research, predicted to increase the farm and ranch cash receipts by \$128 million annually, is ample justification for establishing a CVM in the Region. This value is based upon the conservative estimate that veterinary research will provide new methods for prevention and control of animal diseases and reduce losses by 15 percent.

DEMAND AND SUPPLY OF ANIMAL TECHNICIANS

The objectives are to identify training programs for animal technicians and assess the demand for and supply of animal technicians in the Region. Analysis of the data leads to the following conclusions:

1. The veterinary medical profession continues to expand its utilization of animal technicians up to economic limits.
2. There is no indication that veterinarians employ animal technicians in lieu of veterinarians. From 1970 to 1975 the number of technicians employed increased by 47 percent and the number of DVM's employed by other veterinarians increased 76 percent.
3. In the United States 49 animal technician training programs were identified; in the Old West states two active (Nebraska School of Technical Agriculture in Curtis, NE, and Eastern Wyoming Community



College in Torrington, WY), one discontinued (Technical College of the Rockies in Thermopolis, WY), and one scheduled to open in the Fall of 1976 (North Dakota State University) were identified.

4. The number of animal technicians employed by veterinarians in the Region was 1,662 in 1974 and is estimated to be 1,806 in 1975 and 2,310 in 1980.

5. The six-year period 1975 through 1980 will require a supply of 2,037 technicians to meet the increase in demand and replace those lost from the field. The supply during the same six-year period was estimated at 1,946 a small deficit is expected in the first four years and a modest oversupply after 1978.

6. Opening additional schools for animal technicians in the Region after 1978 will cause the supply to exceed the estimated demand. If the Region establishes a college of veterinary medicine, the college should not initiate a new animal technician program.

PROFILE OF CURRENT VETERINARY MEDICAL MANPOWER IN THE REGION

An examination of the present supply of veterinarians in the Old West Region -- to estimate its adequacy and to describe its distributive features -- is preliminary to a projection of future supply.

The percentage of U.S. veterinarians residing in the Old West has been declining for the past two decades. This trend is illustrated by Figure 2. Examination of the relative growth indicates that manpower in the profession in the five-state Region as a whole has not kept pace with the national growth. In 1955 the Region's share of the nation's total veterinary manpower pool was 4.8 percent. This ratio





FIGURE 2 VETERINARIANS RESIDING IN THE OLD WEST,
PERCENT OF TOTAL IN U.S.



declined so that by January, 1974, the Region's portion of the national total was only 3.9 percent.

Workloads of Veterinarians in the Region

Veterinarians in the Region are responsible for the health of over 630 million head of livestock and poultry. Cash receipts from livestock and products was determined per veterinarian as a measure of his responsibility. For the Old West area this amounted to over \$4,900 million per veterinarian as compared to about \$1,700 million per veterinarian in the U.S.

One measure of the adequacy of the number of veterinarians currently residing in the Old West is the number of hours worked per week and the weeks worked per year. Full-time veterinarians in the Region work an average of 57.7 hours per week and 50 weeks of the year. A total of 92.6 percent of all veterinarians surveyed reported weekly work hours in the range of 40 to 90 with 60 hours per week (the mode) reported most frequently. Analysis of these yearly workloads indicates that the demand for professional services exceeds the supply of veterinarians to provide these services in a reasonable number of working hours per week and a reasonable number of working weeks per year.

Characteristics of Veterinarians in the Region

A profile of the veterinarian representative of the largest proportion of veterinarians residing in the Old West Region produces the following description. He is self-employed or in practice with other veterinarians and is between the ages of 30 to 50. He has been in practice for 14 years. The greater share of his responsibilities involves him in the health of livestock. His workload is onerous:



his yearly hours on the job are over a third more than the normal 40 hours a week, 49 weeks a year. He seeks relief from long hours by increases in staff of other DVM's and animal technicians.

Despite the demands on his time, he does not currently intend to leave the Region. Over half of the current manpower came from states outside of the Region or from foreign countries. All except 6.9 percent of the immigrants came from states or countries which have veterinary colleges.

An analysis of the current veterinary medical manpower brings into focus two main indicators bearing directly on the study of a need for a college of veterinary medicine in the area. First, the workloads of the area's DVM's establish the need for more veterinary manpower; the expectation of larger staff assistance demonstrates a growing manpower demand. Second, without a school for educating veterinarians, the area is currently losing more than half (60-61 percent) of its youth who do obtain a DVM. Over the years the Old West States have been dependent upon recruiting from outside the Region to obtain their own veterinary medical services.

PROJECTION OF THE SUPPLY OF VETERINARIANS

Several options are considered as sources for replacements and additions to the supply of veterinarians: a) contract for student spaces in veterinary colleges outside of the Region, b) establish a regional college of veterinary medicine, c) contract



for student spaces plus recruit out-of-state and foreign veterinarians, and d) contract for student spaces temporarily until a regional college of veterinary medicine is established, plus recruit out-of-state and foreign veterinarians. Recruitment as a sole source of supply, in lieu of providing education in veterinary medicine, is not feasible because the growing national shortage of veterinarians is expected to reach nearly 4,000 by 1980, according to the National Academy of Sciences.

The supply of veterinarians, predicted for 17 years under the options listed above, is summarized and compared with the demand as follows:

Program	Supply		Percent of Demand 1984-1990
	Percent of Demand 1974-1990	1984-1990	
Contracts	272	15	
Regional CVM		327	45
Contract and Re- cruitment	1,311	56	
Contract, Regional CVM, and Re- cruitment	1,620	69	

It is concluded that the optimal system for supplying veterinarians for the Old West Region includes a) temporary use of available contracts until 1984, b) establish a regional CVM to graduate its first class in 1984, and c) continual recruitment of out-of-state veterinarians. The demand for veterinarians compared with the optimal system for supplying veterinarians is illustrated in Figure 3. The data clearly indicate the necessity for prompt action to establish a regional college.



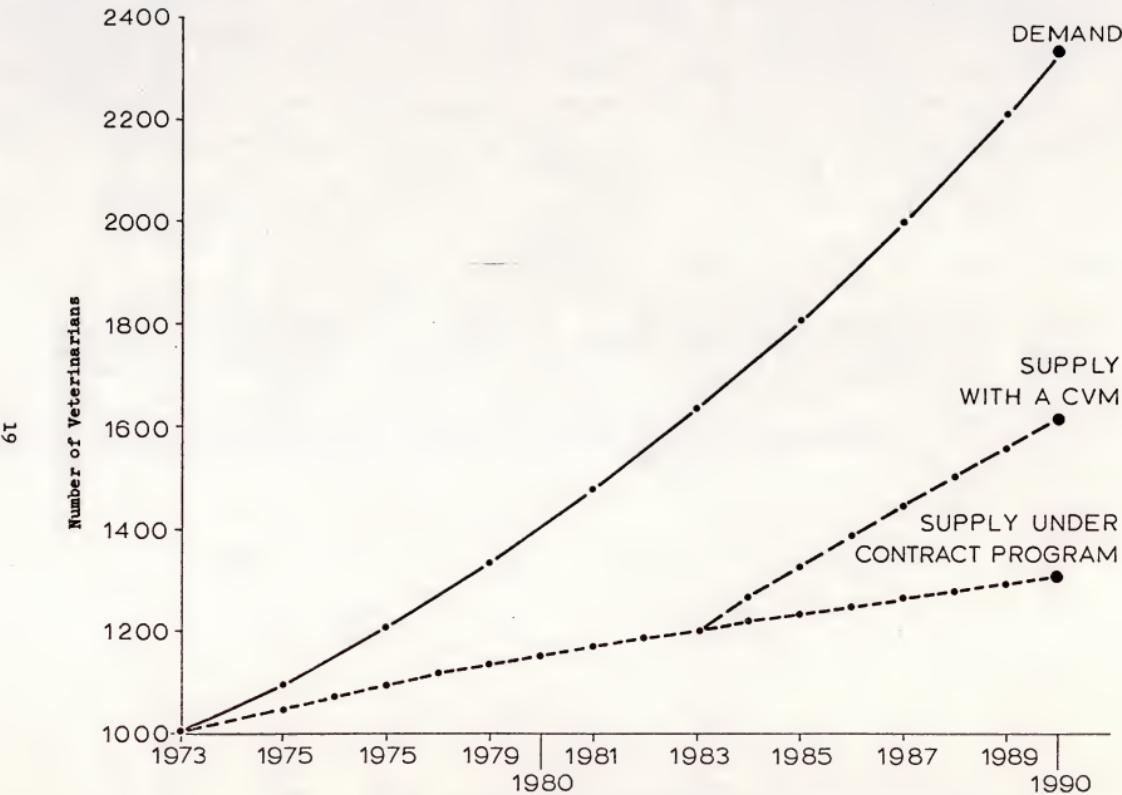


FIGURE 3 ESTIMATED DEMAND AND SUPPLY OF VETERINARIANS IN THE OLD WEST,
1973-1990, UNDER CONTRACT PROGRAMS AND WITH A NEW CVM IN THE REGION



EVALUATION OF ALTERNATIVE APPROACHES TO FULFILLING THE REGION'S DEMANDS FOR VETERINARY MEDICINE

In response to the magnitude and diversity of the demands, the three following alternatives for fulfilling those demands are evaluated: a) continue efforts to contract for services of a CVM; or b) share an existing veterinary medical curriculum; or c) establish a college of veterinary medicine in the Region to service the five states.

Advantages of Contracts

1. Prior to the late 1960's contracts served those states without colleges by:
 - a) providing the major source of veterinarians for the state,
 - b) supplying limited opportunities for DVM education, and
 - c) forestalling the cost of construction of a CVM.

Disadvantages of Contracts

1. There is no CVM in the five Old West states with which to contract, so efforts to contract must be with states outside of the Region.
2. Contracts, being limited to DVM education, do not provide the equally important benefits to the Region: research; referral and diagnostic services; and intern, residency, extension, graduate, and continuing education.
3. The number of guaranteed spaces available to nonresidents is dwindling because:
 - a) Veterinary colleges already enroll a large or an excessive number of students--a factor causing a number of the colleges to be less than fully accredited.



- b) States with colleges are reserving all or a larger proportion of student spaces for their residents. State authorities have mandated reductions in nonresident enrollment or asked colleges to justify acceptances of nonresidents.
- c) Contingency plans exist for reduction of enrollment when the federal capitation grants are terminated. When enrollment decreases, those cuts may be expected among nonresidents in view of the overwhelming demand for admission by state residents.
- d) Significant state support for expansion of existing colleges, with the exception of two or three states, is not anticipated.

4. The cost of contracts is high relative to the one student benefit received. Colleges generally seek payment at the level of full cost; some demand full costs plus construction funds.

5. Contracts do not encourage retention of college educated young people; many graduates practice in the state where they are educated rather than return to their native state.

6. Contracts only partially and temporarily fill the need.

7. Customer states are deprived of the economic benefits (tax revenue, jobs, complete services, economic multiplier effect of additional revenue) accruing to a state which has a CVM.

In conclusion, dependence upon states outside of the Region through contracts is failing to serve the Region's needs in veterinary medicine; this approach is not considered a viable alternative.

Advantages of a Shared Curriculum

- 1. Spaces for all levels of students are guaranteed on a permanent basis.



2. Sharing facilities, equipment, and faculty assures a quality program at less cost than if each state were to build a college.

3. Clinical instruction should be superior to the contract approach because a group of states can provide a larger quantity and diversity of patients than one state can.

Class Size and Geographic Location of CVM's
as Candidates for Shared Curriculum

States which have veterinary colleges and are located contiguous to the Old West include Colorado, Kansas, Missouri, Iowa, and Minnesota. The survey of enrollment in those colleges revealed the following number of students in the 1974-75 first-year veterinary class: Colorado-94, Iowa-98, Kansas-100, Minnesota-73, and Missouri-72. The location of the CVM's in the above states (Fort Collins, CO; Ames, IA; Manhattan, KS; St. Paul, MN; and Columbia, MO) is not geographically close to the center of the Old West Region. In contrast, Washington State University's CVM at Pullman is reasonably near the geographic center of its tri-state area of Washington, Idaho, and Oregon. Large class size and unsatisfactory geographic location of the CVM's in Colorado, Iowa, Kansas, Minnesota, and Missouri preclude further consideration of expansion of those colleges to accommodate Old West residents.

Disadvantages of Shared Curriculum Approach

1. Existing colleges around the Region have large classes and are not located near the geographic center of the Old West Region.

2. Long-term financial commitments on the part of the legislature of each participating state is a necessity.

3. Long distance from the geographic center of the Old West



Region to a college outside the Region will create inequities in services to the peripheral geographic areas. Students, patients, diagnostic, and other materials must be transported from all parts of the Region to the CVM.

4. Facilities are duplicated in several states.

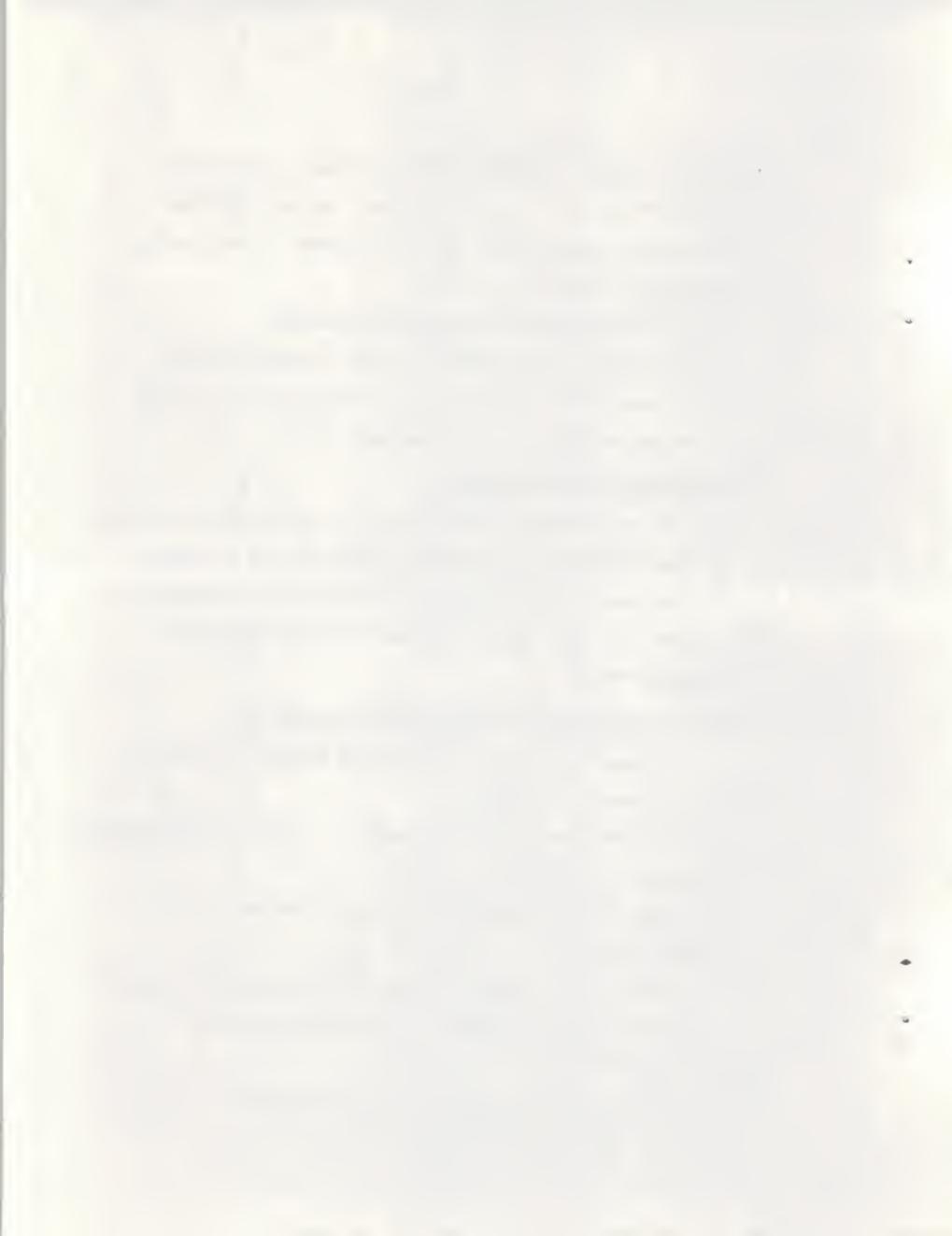
In conclusion, the mechanism of a shared veterinary medical curriculum is not considered a viable alternative to serve the needs of the Old West states for the reasons stated above.

Disadvantages of a Regional College

1. Long-term financial commitment on the part of each legislature is essential even though the cost per cooperating state is modest;
2. Facilities in each of the participating state may be utilized but a central facility requires a capital contribution from each participating state.

Advantages of Establishing a Regional Veterinary College

1. A permanent solution to the Region's demands in veterinary medicine is reasonably assured.
2. Full services of education, research, and service are available to each state at minimum cost.
3. Full control of programs and budgets is vested in the participating states.
4. Retention of young college graduates in the Region is favored; more veterinarians practice in the state where they receive their education.
5. A supply of veterinarians which can be adjusted to fulfill the demand of each state is reasonably assured.



6. An equitable share of spaces for students from each state in the Old West Region is reasonably assured.

7. Benefits to the economic climate of the Region are as follows:

- a) Provides the Region with research, continuing education, diagnostic and animal referral services, and graduates essential for alleviating the more than \$856 million annual loss in potential farm cash receipts attributable to animal diseases.
- b) Protects the Region's investment in animals--veterinary medical research alone is estimated to increase the farm and ranch income from livestock products by over \$128 million annually.
- c) Provides opportunity for new industries to develop from spin-off of biomedical and environmental research.
- d) Attracts federal, foundation, and industrial funds to the Region which can account for up to half of the annual operating budget for the regional college.

8. The level of professional services, including consumer protection and public health, will be elevated.

9. The medical schools and departments of veterinary science in the Region will benefit through collaboration and scientific interchange with a regional CVM.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. This study concludes that the Old West Region, comprised of Montana, Nebraska, North Dakota, South Dakota, and Wyoming, has an unequivocal need for a college of veterinary medicine. This conclusion is substantiated by the following findings:



- a) According to the projection developed in this study, the demand for veterinary medical services is increasing rapidly. In the absence of a college of veterinary medicine the shortage of veterinarians is estimated at 254 in 1980, 573 in 1985, and 1,028 in 1990.
- b) A large number of young people want to become veterinarians. The number of preveterinary students in the Region's universities is 646 in 1974 and is estimated at 869 in 1980 and nearly 1,000 in 1990.
- c) In the absence of an Old west college of veterinary medicine, few students will achieve their goal because veterinary colleges disapproved over 88 percent of the applications from the Region in 1974; over 95 percent is expected to be refused in 1975.
- d) Aggregate benefits of a CVM to the Region from research, patient referral service, diagnostic service, and residency, intern, and continuing education are substantially as important to the Region as is the DVM educational program. Research, predicted to increase the farm and ranch cash receipts by \$128 million annually, is of itself justification for establishing a CVM in the Region.
- e) Evaluation of four alternative approaches led to the conclusion that a new CVM is the only viable, long-range solution to the Region's need. Recruitment of out-of-state and foreign veterinarians as the sole supply, in lieu of providing an educational opportunity in veterinary medicine, was eliminated from further consideration because there is a growing national shortage of veterinarians expected to reach nearly 4,000 by 1980. The contract approach, tried by the five states in the past, is not feasible for fulfilling the need because



veterinary colleges outside of the Region are operating at full or excessive capacity. States which have colleges are reserving all or a larger portion of student spaces for residents. Services such as continuing education, patient referral, and research cannot feasibly be contracted for outside of the Region. The shared curriculum approach was judged impracticable because CVM's contiguous with the Region have large classes and are located too great a distance from the geographic center of the Old West Region.

2. It is further concluded that if the Region establishes a CVM, the college should not initiate a new animal technician program. The supply of technicians provided by present training programs is estimated to equal the demand in 1978. Although the veterinary medical profession continues to utilize animal technicians up to economic limits, there is no indication that technicians are employed in lieu of veterinarians.

Recommendations

1. In view of the magnitude and perpetual nature of the demand for veterinary medical services in the five-state Region, this study recommends the establishment of a college of veterinary medicine as the long-range solution to the needs of the Old West Region.

2. During the interim of about five years, until an Old West CVM is opened, it is recommended that the Region continue efforts to contract for student spaces to the extent that spaces are available in veterinary colleges adjacent to the Region.

3. As a service to the states and in the interest of developing economic and human resources in the Region, this study recommends that the Old West Regional Commission promptly undertake a study to determine



the feasibility of establishing a college of veterinary medicine to serve the five cooperating states.

4. Finally, it is recommended that the feasibility study encompass the following components:

- a) Programs of education, research, and service designed uniquely to fulfill the specific needs of the Old West Region.
- b) The size and organization of the regional college based upon the magnitude of each program, the number of all levels of students, and the required number of faculty and support personnel.
- c) The optimal location for the regional college of veterinary medicine based upon objective evaluation of alternate locations.
- d) Space requirements, giving consideration to maximal utilization of existing university facilities.
- e) Capital costs.
- f) Operating costs.
- g) Sources of capital and operating funds other than state appropriations.
- h) Equitable formula for participation of each cooperating state in utilization and funding of the college.
- i) Recommendations.



